

Application No. 10/580,097
Paper Dated: May 24, 2010
In Reply to USPTO Correspondence of February 22, 2010
Attorney Docket No. 5204-061409

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims

1. (Currently Amended) A soluble metal oxide comprising:
~~one or more a plurality of~~ metal oxide crystallite particles;
each crystallite particle comprising a plurality of metal and oxygen moieties;
an inner organic binding group attached to at least one metal moiety of a metal oxide crystallite particle; and
an outer organic binding group attached to at least one inner organic binding group,
wherein the metal moiety is selected from the group consisting of tin and titanium.
2. (Original) A soluble metal oxide as claimed in claim 1 wherein each crystallite particle further comprises at least one hydroxyl group.
3. (Previously Presented) A soluble metal oxide as claimed in claim 1 wherein;
each inner organic binding group is attached to each metal moiety by a covalent bond; and
each outer organic binding group is attached to each inner organic binding group by a hydrogen bond.
4. (Previously Presented) A soluble metal oxide as claimed in claim 1 of the general formula:
$$[\{[MO_m]_n(OH)_p\}X_q/Y_r]/(H_2O)_s$$
wherein:

Application No. 10/580,097
Paper Dated: May 24, 2010
In Reply to USPTO Correspondence of February 22, 2010
Attorney Docket No. 5204-061409

M represents a metal moiety

O represents an oxygen moiety

m is a variable dependent on the oxidation state of the metal moiety (M) and is in the region of between 1 and 3

n represents the number of metal oxides in the crystallite particle

OH represents an hydroxyl group

X represents an inner organic binding group

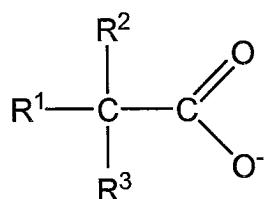
Y represents an outer organic binding group

H₂O represents hydrogen bonded water

p, q, r and s represent variables dependent in particular on the number of metal oxides in the crystallite particle (n), and reaction conditions.

5. (Original) A soluble metal oxide as claimed in claim 4,

Wherein X represents the inner organic binding group of the general formula,



Wherein:

R¹ = an organic group, a halo-organic group, a hydrogen or a halogen;

R² = an organic group, a halo-organic group, a hydrogen or a halogen; and

R³ = an organic group, a halo-organic group, a hydrogen or a halogen.

6. (Original) A soluble metal oxide as claimed in Claim 5, wherein

R¹ represents a straight-chain, branched chain or cyclic organic group with up to 20 carbons, a straight-chain, branched-chain, or cyclic halo-organic group with up to 20 carbons and up to 41 halogen atoms, a hydrogen or a halogen;

Application No. 10/580,097

Paper Dated: May 24, 2010

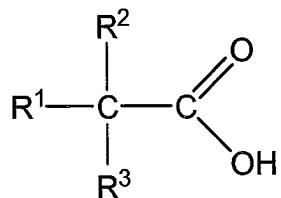
In Reply to USPTO Correspondence of February 22, 2010

Attorney Docket No. 5204-061409

R² represents a straight-chain, branched-chain or cyclic organic group with up to 20 carbons, a straight-chain, branched-chain, or cyclic halo-organic group with up to 20 carbons and up to 41 halogen atoms, a hydrogen or a halogen; and

R³ represents a straight-chain, branched-chain or cyclic organic group with up to 20 carbons, a straight-chain, branched-chain, or cyclic halo-organic group with up to 20 carbons and up to 41 halogen atoms, a hydrogen or a halogen.

7. (Previously Presented) A soluble metal oxide as claimed in claim 4 wherein Y represents the outer organic binding group of the general formula:



Wherein:

R¹ = an organic group, a halo-organic group, a hydrogen or a halogen;

R² = an organic group, a halo-organic group, a hydrogen or a halogen; and

R³ = an organic group, a halo-organic group, a hydrogen or a halogen.

8. (Original) A soluble metal oxide as claimed in Claim 7, wherein
R¹ represents a straight-chain, branched-chain or cyclic organic group with up to 20 carbons, a straight-chain, branched-chain, or cyclic halo-organic group with up to 20 carbons and up to 41 halogen atoms, a hydrogen or a halogen;

R² represents a straight-chain, branched-chain or cyclic organic group with up to 20 carbons, a straight-chain, branched-chain, or cyclic halo-organic group with up to 20 carbons and up to 41 halogen atoms, a hydrogen or a halogen; and

Application No. 10/580,097

Paper Dated: May 24, 2010

In Reply to USPTO Correspondence of February 22, 2010

Attorney Docket No. 5204-061409

R³ represents a straight-chain, branched-chain or cyclic organic group with up to 20 carbons, a straight-chain, branched-chain, or cyclic halo-organic group with up to 20 carbons and up to 41 halogen atoms, a hydrogen or a halogen.

9. (Previously Presented) A soluble metal oxide as claimed in claim 1 wherein each metal oxide crystallite particle is a nanocrystallite particle having an average particle size in the range of between 5 and 100 Å.

10. (Cancelled).

11. (Previously Presented) A soluble mixed metal oxide comprising:
the soluble metal oxide as claimed in claim 1 wherein each crystallite particle further comprises:

at least one metal ion attached to each crystallite particle.

12. (Original) A soluble mixed metal oxide as claimed in claim 11, wherein:

each inner organic binding group is attached to either a metal moiety or to both a metal moiety and to a metal ion;

each outer organic binding group is attached to either a metal ion, or to an inner organic binding group, or to both a metal ion and an inner organic binding group; and

wherein the metal ions are attached to any combination of the following:

- an oxygen moiety;
- an hydroxyl group;
- an inner organic binding group; and
- an outer organic binding group.

Application No. 10/580,097

Paper Dated: May 24, 2010

In Reply to USPTO Correspondence of February 22, 2010

Attorney Docket No. 5204-061409

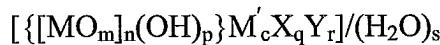
13. (Original) A soluble mixed metal oxide as claimed in claim 12 wherein:

each inner organic binding group is attached to each metal moiety by a covalent bond and to each metal ion by either a covalent bond or a donor bond;

each outer organic binding group is attached to each inner organic binding group by a hydrogen bond and to each metal ion by either a covalent bond or a donor bond; and

each metal ion is attached to each oxygen moiety by a covalent bond, to each hydroxyl group by either a donor bond or a covalent bond, to each inner organic binding group by either a covalent or a donor bond, and to each outer organic binding group by either a covalent or a donor bond.

14. (Previously Presented) A soluble mixed metal oxide as claimed in claim 11 of the general formula:



M represents a metal moiety

O represents an oxygen moiety

m is a variable dependent on the oxidation state of the metal moiety (M) and is in the region of between 1 and 3

n represents the number of metal oxides in the crystallite particle

OH represents an hydroxyl group

M' represents a metal ion

X represents an inner organic binding group

Y represents an outer organic binding group

H₂O represents hydrogen bonded water

c, p, q, r and s represent variables dependent in particular on the number of metal oxides in the crystallite particle (n), and reaction conditions.

15. (Original) A soluble mixed metal oxide as claimed in claim 14 wherein the metal ion (M') is selected from the group comprising of tetravalent tin, divalent tin,

Application No. 10/580,097

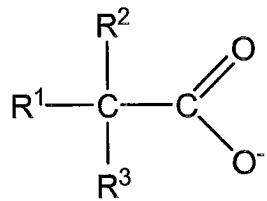
Paper Dated: May 24, 2010

In Reply to USPTO Correspondence of February 22, 2010

Attorney Docket No. 5204-061409

tetravalent titanium, divalent titanium, indium, antimony, zinc, titanium, vanadium, chromium, manganese, iron, cobalt, nickel, zirconium, molybdenum, palladium, iridium and magnesium.

16. (Previously Presented) A soluble mixed metal oxide as claimed in claim 14, wherein X represents the inner organic binding group of the general formula:



Wherein:

R¹ = an organic group, a halo-organic group, a hydrogen or a halogen;

R² = an organic group, a halo-organic group, a hydrogen or a halogen; and

R³ = an organic group, a halo-organic group, a hydrogen or a halogen.

17. (Original) A soluble mixed metal oxide as claimed in Claim 16, wherein

R¹ represents a straight-chain, branched-chain or cyclic organic group with up to 20 carbons, a straight-chain, branched-chain, or cyclic halo-organic group with up to 20 carbons and up to 40 halogen atoms, a hydrogen or a halogen;

R² represents a straight-chain, branched-chain or cyclic organic group with up to 20 carbons, a straight-chain, branched-chain, or cyclic halo-organic group with up to 20 carbons and up to 40 halogen atoms, a hydrogen or a halogen; and

R³ represents a straight-chain, branched-chain or cyclic organic group with up to 20 carbons, a straight-chain, branched-chain, or cyclic halo-organic group with up to 20 carbons and up to 40 halogen atoms, a hydrogen or a halogen;

Application No. 10/580,097

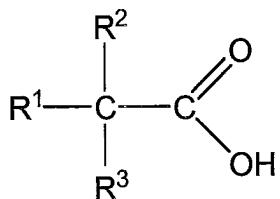
Paper Dated: May 24, 2010

In Reply to USPTO Correspondence of February 22, 2010

Attorney Docket No. 5204-061409

18. (Previously Presented) A soluble mixed metal oxide as claimed in claim 14

wherein Y represents the outer organic binding group of the general formula.



Wherein:

R¹ = an organic group, a halo-organic group, a hydrogen or a halogen;

R² = an organic group, a halo-organic group, a hydrogen or a halogen; and

R³ = an organic group, a halo-organic group, a hydrogen or a halogen.

19. (Original) A soluble mixed metal oxide as claimed in claim 18,

wherein:

R¹ represents a straight-chain, branched-chain or cyclic organic group with up to 20 carbons, a straight-chain, branched-chain, or cyclic halo-organic group with up to 20 carbons and up to 41 halogen atoms, a hydrogen or a halogen;

R² represents a straight-chain, branched-chain or cyclic organic group with up to 20 carbons, a straight-chain, branched-chain, or cyclic halo-organic group with up to 20 carbons and up to 41 halogen atoms, a hydrogen or a halogen; and

R³ represents a straight-chain, branched-chain or cyclic organic group with up to 20 carbons, a straight-chain, branched-chain, or cyclic halo-organic group with up to 20 carbons and up to 41 halogen atoms, a hydrogen or a halogen;

Application No. 10/580,097
Paper Dated: May 24, 2010
In Reply to USPTO Correspondence of February 22, 2010
Attorney Docket No. 5204-061409

20. (Previously Presented) A soluble mixed metal oxide as claimed in claim 11 wherein each crystallite particle is a nanocrystallite particle having an average particle size in the range of between 5 and 100 Å.

21-49. (Cancelled).